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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/497,993	02/04/2000	Bradley Paul Barber	2925-0401P	8152
30595	7590	11/26/2003		
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 8910 RESTON, VA 20195				
			EXAMINER TUGBANG, ANTHONY D	
			ART UNIT 3729	PAPER NUMBER 18
DATE MAILED: 11/26/2003				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/497,993

**Applicant(s)**

BARBER ET AL.

**Examiner**

A. Dexter Tugbang

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,10-13,15,16 and 29-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,10-13,15,16 and 29-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 February 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. The amendment filed 9/10/03 (Paper No. 17) has been fully considered and made of record.

### ***Drawings***

2. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

3. Claim 12 is objected to because of the following informalities: the phrase of "such as a" (line 2) should be replaced with the phrase --formed from one of--. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

5. Claims 30 and 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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In each of Claims 30 and 32, the recitation of “wherein the continuous piezoelectric layer is not patterned” (lines 1-2) completely contradicts the step of “removing some of all...after said second metal film is patterned” (last 5 lines of each of Claims 1 and 13). After forming the second metal film, how can the piezoelectric material be not patterned, yet some or all of the piezoelectric material is removed? Removing even a portion of the piezoelectric material is, in a sense, patterning. Each of Claims 30 and 32 excludes the removal steps of Claims 1 and 13, respectively, which renders the claims as being vague, indefinite, confusing and misleading.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 10-13, 15, 16 and 29-32 rejected under 35 U.S.C. 102(b) as being anticipated by Zdeblick et al 5,129,132.

Zdeblick discloses a method of producing a piezoelectric or acoustic device comprising: depositing a first metal film 36, 38, 40 on a substrate 32 and patterning the first metal film by lithographic patterning (see col. 7, lines 35-38); depositing piezoelectric material 42, 44 (in Fig. 5) on the first metal film; depositing a second metal film 44 on the piezoelectric material and patterning the second metal film by a lithographic process (see col. 8, lines 17-20); and subsequently removing some of the piezoelectric material not involved in signal transmission by a selective etching process (see sequence of Figs. 9-10 and col. 10, lines 42+), which meets all of

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the limitations of the claimed method. The piezoelectric material removed by the etching process would limit the propagation losses in a lateral direction of the un-etched regions, or regions of the piezoelectric material still remaining, to a bimorph effect (see col. 7, lines 2-4 and Figs. 37A-37B).

Regarding Claims 1 and 13, the recitation of "acoustic resonator" has not been given any patentable weight as the recitation is mere intended use and does not result in any manipulative difference of the claimed process. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Regarding Claim 10, Zdeblick suggests that the piezoelectric material is ZnO (see col. 7, line 60).

Regarding Claim 12, Zdeblick shows multiple acoustic layers (in Fig. 7) with the substrate being formed of silicon (see col. 6, lines 63-64).

Regarding Claim 16, Zdeblick forms a void with the sidewalls of the piezoelectric material as a result of etching (see Fig. 10) and this void is backfilled with a different material of a gas or air in cavity 86 (in Fig. 11).

Regarding Claims 29-32, as best understood, Zdeblick teaches that the piezoelectric material is deposited as a continuous layer (see col. 7, lines 50+), which at the time that deposition occurs, is not considered to be patterned.

*Response to Arguments*

8. Applicant's arguments with respect to claims 1, 10-13, 15, 16 and 29-32 have been considered but are moot in view of the new ground(s) of rejection.

*Conclusion*

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 703-308-7599. The examiner can normally be reached on Monday - Friday 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9302.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0858.



**A. Dexter Tugbang**  
**Primary Examiner**  
**Art Unit 3729**

November 21, 2003